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| 09/895,324 | 07/02/2001 | Marc Bavant | 210220US2 | 6714 |
| 22850 | 7590 | 09/02/2005 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. | | | MERED, HABTE | |
| 1940 DUKE STREET | | | ART UNIT | |
| ALEXANDRIA, VA 22314 | | | PAPER NUMBER | |
| | | | 2662 | |

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,324

Applicant(s)

BAVANT ET AL.

Examiner

Habte Mered

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/28/02; 07/02/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 1-12 are examined.

Claim Objections

2. **Claims 10-12** are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

3. Claim 9, item © refers to transit LEC. However the specification only provides brief support for transit ELAN and not "transit LEC". Claim 9 has been examined with the understanding that the Applicant is referring to a transit ELAN. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe et al (US Pub. No. 2002/0018489), hereinafter referred to as Ambe, in view of Husak et al (US 5, 949, 783), hereinafter referred to as Husak, and Pazy et al (US 6, 614, 792), hereinafter referred to as Pazy.

Ambe discloses a switch capable of doing Layer 2 and Layer 3 switching in local area communications network such as token ring, ATM, ethernet, fast ethernet and in general all types of LANs.

5. Regarding **claim 1**, Ambe discloses a virtual router (**See Figure 1; See also Paragraphs 8 and 63; Ambe's switch has Layer 3 switching capability making it a virtual router**) distributed on a carrier network (**See Figures 45 and 46**), where the carrier network comprising one or more components, each of the components comprising at least two nodes communicating with one another by means of an artery (**In Figure 45 each switch is a node inter-connected by a high speed bus of 10 GBps, Each switch has different components in the form of stations belonging to different VLANs. See Paragraphs 68 and 380**), a node (**Can be any of the switches in Figures 45 and 46**) comprising a FAX access function (**The Gigabit Port Interface Controller in Ambe's system serves as an access function. See Paragraphs 65 and 66.**) wherein at least one component of the network comprises a virtual network VLAN_i (**Station A is on port 1 in VLAN₁ in switch 1 and Station B is on port 1 in VLAN₂ in switch 3**); at least one transit ELAN, Tx (**Switch 1,2, and 3 are interconnected via high speed bus as shown in Figures 1, 45, and 46 and further illustrated in Paragraph 68. See also Paragraph 280**), at the level of an access function FAX; LEC router means Rix adapted to connecting the access function Fax to at least one VLAN_i (**This limitation simply describes Layer 2 switching based on MAC address and Ambe's system readily accomplishes Layer 2 switching. See Paragraphs 8, 100, and 148. Further in Ambe's system each ingress port**

associated with specific VLANs does Layer 2 switching with the support of the GPIC. See Paragraph 66. Also as indicated by the Applicant Page 5, Lines 19-22, bridging and providing Layer 2 switching within the same VLAN is prior art and what is new with the Applicant's invention is routing between different VLANs and like the Applicant Ambe's system provides routing between different VLANs using Layer 3 switching. See Paragraph 205); means (Lx) for the identification of the VLANi serviced by the access function Fax (Address Resolution Engine, shown in Figure 2 and further illustrated in Paragraph 96, identifies VLANs serviced by the ports), means (LEC transit) to connect the transit ELAN to the access function (Each switch can interconnect and communicate to other switches via a high speed bus (i.e. LAN) and the IPIC connects the bus to the GPIC (i.e. access function) as shown in Figures 1, 45, and 46 and further illustrated in Paragraphs 68 and 280.)

Ambe however fails to expressly disclose that the use of LAN emulation protocol is one way of implementing a Virtual LAN in an ATM network. Specifically the ATM based VLAN has as part of the node server functions (LES/BUS, LECS), wherein at least one component of the network comprises the following elements: several ELANi-bridges, each ELANi-bridge being connected to a virtual network VLANi.

Husak discloses a LAN emulation subsystem for supporting multiple Virtual LANs. Husak discloses an apparatus and method for efficiently supporting multiple VLANs over an emulated LAN having a plurality of distributed LAN emulation servers.

Husak discloses an ATM based VLAN has as part of the node server functions (LES/BUS, LECS) (**See Figure 4**), wherein at least one component of the network comprises the following elements: several ELANi-bridges (**See Figure 4**), each ELANi-bridge being connected to a virtual network VLANi. (**See Figures 4, 5A and 5B. Column 4, Lines 55-67 and Column 6, Lines 1-27.**)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ambe's apparatus to incorporate an ATM based LAN/VLAN. The motivation being Ambe's disclosure that his switch supports ATM based LAN in **Paragraph 3** and specifically mentions in **Paragraph 363** that IEEE 802.3 as the supported ATM LAN and further Ambe discloses that the supported LANs can be configured as VLANs in **Paragraph 380**. Husak shows how an ATM emulated LAN can efficiently support multiple VLANs in **Column 2, Lines 60-67** further improving network efficiency.

Ambe fails to expressly disclose how an MPOA ELAN will use a MPOA Server (MPS) as opposed to legacy ELANs.

Pazy describes a method of communication between legacy and MPOA ELANs.

Pazy shows MPOA server (MPS) in use in MPOA ELANs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ambe's apparatus to incorporate MPOA Server (MPS). The motivation being Ambe's disclosure that his switch supports ATM based LAN in **Paragraph 3** and specifically mentions in **Paragraph 363** that IEEE 802.3 as the supported ATM LAN and Ambe further indicates as an objective of his system as

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increasing Layer 2 and 3 switch processing speed in Paragraph 8. Pazy shows how an ATM LAN using MPOA server can increase Layer 2 and 3 switch processing as further illustrated in **Column 2, Lines 44-63.**

6. Regarding **claim 2**, Ambe discloses a distributed router, wherein the step of determining the lists of the serviced VLANi is obtained by considering any one of the Lm lists and determining the contents of its intersection with any other of the lists to obtain the empty set. **(Ambe discloses use of spanning tree protocol. See Paragraphs 119, 148, and 346. Further Applicant has not shown the benefit of using his method of ensuring uniqueness by getting an empty set.)**

7. Regarding **claim 3**, Ambe discloses a virtual router, wherein a list Lm is drawn up by using an election protocol such as the VRRP protocol standardized at the IETF. **(Ambe discloses his system can run any kind of protocol and VRRP is not excluded.)**

8. Regarding **claim 4**, Ambe discloses a router, comprising an election function implanted in the access function FAX engaged in dialog with the homologous functions by exchange on the ELANi bridges in using the LEC routers Rix. **(Ambe discloses the ARL engine/L2/L3 Search engine are effectively the election and routing function. See Paragraph 96. Since Ambe's switch has ethernet port any kind of LAN specific bridge can be connected to it.)**

9. Regarding **claims 5 and 6**, Amber discloses all aspects of the invention as set forth in claim 1 but fails to disclose a router, wherein a VLAN comprises at least one LEC user connected to a node of the carrier network.

Husak discloses a system wherein a VLAN comprises at least one LEC user connected to a node of the carrier network. **(See Figures 4, 5A and 5B. Column 4, Lines 55-67 and Column 6, Lines 1-27.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ambe's apparatus to incorporate an ATM based LAN/VLAN. The motivation being Ambe's disclosure that his switch supports ATM based LAN in **Paragraph 3** and specifically mentions in **Paragraph 363** that IEEE 802.3 as the supported ATM LAN and further Ambe discloses that the supported LANs can be configured as VLANs in **Paragraph 380**. Husak shows how an ATM emulated LAN can efficiently support multiple VLANs in **Column 2, Lines 60-67** further improving network efficiency.

10. Regarding **claim 7**, Ambe discloses a router, distributed in ATM type carrier networks **(ATM LAN can be one of the LANs using Ambe's switch. See Paragraphs 3, 363, and 380)** with IP type data packets **(See Paragraphs 11-13, 218, and 235)**.

11. Regarding **claim 8**, Ambe discloses a method of routing in a switched network comprising one or more components, the component or components comprising at least two nodes connected by a communications artery **(In Figure 45 each switch is a node inter-connected by a high speed bus of 10 GBps, Each switch has different components in the form of stations belonging to different VLANs. See Paragraphs 68 and 380)**, each of the nodes comprising an access function

Fax (The Gigabit Port Interface Controller in Ambe's system serves as an access function. See Paragraphs 65 and 66.), wherein the method comprises at least one step where the access function relays the data packets received on one of the LECs **(The LECs are associated with the ingress ports)** as follows: (a) if the addressee of the packet is an internal routing function laid out at a node X, the packet is directly handed over to the function **(This can be any internal message like back pressure warning status and control messages or Side Band Channel Messages. See Paragraphs 73 and 80),** (b) if the addressee of a packet is a VLAN serviced by the FAX access function, the data packet is relayed to the router having the same identifier,**(See Paragraphs 96, 118, 128, 207 and 208. The ports are the forwarding engines.)** (c) if the addressee of the packet is a VLAN that is not serviced, the packet is relayed to the transit ELAN **(See Paragraph 210. Ambe describes a default router table which can be any of the switches connected via a high speed bus in a LAN form as shown in Figures 45 and 46).**

Ambe fails to disclose a router, wherein a VLAN comprises at least one LEC user connected to a node of the carrier network.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ambe's apparatus to incorporate an ATM based LAN/VLAN. The motivation being Ambe's disclosure that his switch supports ATM based LAN in **Paragraph 3** and specifically mentions in **Paragraph 363** that IEEE

802.3 as the supported ATM LAN and further Ambe discloses that the supported LANs can be configured as VLANs in **Paragraph 380**. Husak shows how an ATM emulated LAN can efficiently support multiple VLANs in **Column 2, Lines 60-67** further improving network efficiency.

9. Ambe discloses a routing method, wherein the step (b) is carried out as follows: if the addressee VLAN with the identifier j belongs to the list Lx, the relaying function of FAX is activated and the data packet is relayed to the LEC router Rjx having an identifier that is the identifier of the addressee VLAN, **(In Ambe's system an equivalent procedure is provided where the addressee VLAN is searched in the VLAN table and if found the search engine forwards it to the appropriate egress port that handles this specific addressee VLAN. See Paragraphs 96, 118, 128, 207 and 208. The ports are the forwarding engines.)** See and the step (c) is carried out as follows: if the addressee VLAN does not belong to the list Lx, the data packet is relayed to the transit LEC mentioned in the routing table. **(In Ambe's system if the addressee VLAN is not in the VLAN table to be services by the switch then it is routed to a default router which can be any one of the switches shown in Figure 45 and connected via a high speed bus in a LAN set up. See also Paragraph 210.)**

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following US Patents and US Patent Application Publications also disclose similar subject matter:

US Patent (6, 907, 469) to Gallo et al

US Patent (5, 920, 699) to Bare et al

US Patent (6, 798, 775) to Bordonaro et al

US Pub. No. (2002/0186705) to Kadambi et al

US Pub. No. (2005/0036488) to Kalkunte et al

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM

8-29-2005



JOHN PETZLO
PRIMARY EXAMINER